



Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283ROUS01U

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Abel C. Dasylva et al.

Appln. No.: 09/685,090

Filed: October 11, 2000

For: TECHNIQUE FOR ROUTING DATA  
WITHIN AN OPTICAL NETWORK

•  
•  
  
•  
•  
  
•  
•  
  
•  
•  
  
•  
•  
  
•  
•

Group Art Unit: 2633

Examiner: H. Phan

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

RECEIVED

OCT 05 2004

Technology Center 2600

**DECLARATION UNDER 37 C.F.R. § 1.131**

Sir:

I, Abel C. Dasylyva, hereby declare that I am a co-applicant in the above-identified patent application and that I am also a co-inventor of the invention that is described and claimed in the above-identified patent application. I also hereby declare that prior to February 18, 2000, my co-inventors and I conceived of the invention that is described and claimed in the above-identified patent application as evidenced by the following:

1. Prior to February 18, 2000, my co-inventors and I conceived of the invention in Canada. At the time of the invention, I owed a duty of assignment of the invention to Nortel Networks Limited (hereinafter "Nortel").

2. Shortly after my co-inventors and I conceived of the invention, my co-inventors and I submitted a description of the

invention to the appropriate Nortel patent review committee for purposes of obtaining approval to file a patent application for the invention. A date redacted copy of the description of the invention (i.e., our invention disclosure) is attached hereto as Exhibit A.

3. To the best of my knowledge, the Nortel patent review committee followed its standard procedures in reviewing and subsequently approving of the filing of a patent application based upon our invention disclosure. A date redacted copy of an internal Nortel memo approving the filing of the patent application is attached hereto as Exhibit B.

4. On July 3, 2000, our invention disclosure was forwarded to one of Nortel's outside patent attorneys for preparation of a patent application. A copy of a transmittal letter authorizing preparation of a patent application is attached hereto as Exhibit C.

5. Between July 3, 2000, and September 1, 2000, my co-inventors and I had discussions regarding our invention disclosure with the outside patent attorneys, and provided additional supporting materials to the outside patent attorneys, all intended to assist the outside patent attorneys in preparing a patent application for the invention.

6. On September 1, 2000, I was forwarded a draft of the patent application. A copy of the transmittal letter sending the draft is attached hereto as Exhibit D.

7. On September 18, 2000, I was forwarded a final draft of the patent application. A copy of the transmittal letter sending the draft is attached hereto as Exhibit E.

8. On October 5, 2000, I executed the above-identified patent application. A copy of my signed declaration filed with the application is attached hereto as Exhibit F.

8. On October 11, 2000, the above-identified patent application was filed. A copy of the filing receipt for the application is attached hereto as Exhibit G.

I further hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DECLARANT: \_\_\_\_\_

  
Abel C. Dasylva

Date: 09/09/2004

Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283ROUS01U

**EXHIBIT A**

## Invention Disclosure Submission Reply

<b>Disc No:</b>	12283RO	<b>Received Date:</b>	<div style="background-color: black; width: 100px; height: 1.2em;"></div>
<b>Disclosure Title:</b>	All-optical label-switching		

### ----- Inventors -----

Global Id	Name	Work Info	Home Info
053383 8	<b>HR Name:</b> DASYLVA, ABEL C  <b>Known As:</b> ABEL	<b>Location:</b> 21 RICHARDSON SIDE ROAD  <b>Dept:</b> 0V10 <b>Phone:</b> <b>Ext Phone:</b> 613-763-5034 <b>Fax:</b> 763-5692 <b>Ext Fax:</b> 613-763-5692 <b>MailStop:</b> 117D1F04 <b>Citizenship:</b>	<b>Address:</b> 1-70 BOLTON OTTAWA, ON CANADA K1H5A5  <b>Phone:</b> (613)7635034

### ----- Attachments -----

<End of Attachments>

<b>Were there additional inventors involved:</b> no		<b>Was there contractor involvement:</b> no	
<b>Name of Supervisor or Divisional Head:</b>		<b>Name of VP:</b>	
GUO-QIANG WANG		KENT FELSKE	
<b>LOB:</b>	SP&C	<b>Business Unit:</b>	Other (SP&C)
<b>Conception Date:</b>			
<b>Has this invention been discussed with others? If so, please complete:</b>			
<b>Inside Nortel - Whom?</b>		<b>Outside Nortel - Whom?</b>	
<b>Inside Nortel - When?</b>		<b>Outside Nortel - When?</b>	
<b>NDA?</b>	yes		
<b>Are you aware of any imminent future disclosures? Please provide dates and details:</b>			
<b>Keywords for Searching:</b>		<b>Products that will use this invention:</b>	
		Optical cross-connects	
<b>Does this invention arise from any arrangement involving an external organization?</b>		no	

Is this invention relevant to a Standards Activity?	Internal Funding Project #'s:
yes	8127

## Technical Information

### Brief Description of the Invention:

We describe a new all-optical label-switching paradigm, and an associated wavelength switch architecture that implements this paradigm. The key features of this paradigm are the following. -The label stack is encoded into the wavelength in binary form. Each wavelength is associated a binary field that corresponds to its value. For example wavelength 33 is encoded as 000100001. The binary number associated with each wavelength is divided into sub-fields that corresponds to labels. If we consider the previous example, with labels that are 3 bits long, we see that wavelength 33 corresponds to the following label stack: (000, 100, 001). Each cross-connect switches channels according to the top most labels of the wavelengths. In the case of wavelengths described by 9 bits long binary fields, and with 3 bit long labels, this means that incoming wavelengths belonging to the same groups are switched to the same outgoing ports, where the groups are defined as follows:

- group 1: range 000000000 to 000111111
- group 2: range 001000000 to 001111111
- group 3: range 010000000 to 010111111
- group 4: range 011000000 to 011111111
- group 5: range 100000000 to 100111111
- group 6: range 101000000 to 101111111
- group 7: range 110000000 to 110111111
- group 8: range 111000000 to 111111111

Each cross-connect performs label-pop and label-push of the optical labels by using additive and multiplicative wavelength conversion. To illustrate we come back to the previous example with 3-bit long labels, and wavelength  $x=264$  encoded as 100001000. -Label stack of  $x$ : (100, 001, 000) -Pop label: -1: subtract wavelength 256 (corresponding to 100000000) to  $x$ , through additive wavelength conversion -2: convert  $(x-256)$  to  $(2^3)*(x-256)$  through multiplicative wavelength conversion -Push label  $l=110$ : convert  $x$  to  $x/(2^3)+l*(2^8)$  In general in a system with  $W=2^N$  wavelengths, and  $L$  bit long labels where  $L$  divides  $N$  we have:

- Pop label stack of  $x$ : map  $x$  to  $(x-l*(2^{(N-L)}))*2^L$ , where  $l$  is the top most label of  $x$
- Push label  $l$  into  $x$ : map  $x$  to  $\text{floor}((x*2^{(-L)}))+l*2^{(N-L)}$

All the arithmetic operations are implemented using simple wavelength converters and wavelength comparators (especially the floor operation). The length of the labels used by the switches are configurable by variable granularity wavelength filters and comparators

### Problem Solved by the Invention:

This invention has three benefits: -It enables small cross-connects to switch a big number of wavelengths. If we take the case of a system with  $W=2^8=512$  wavelengths and a label length  $L=2$ , we only need a cross-connect with  $W/(2^L)=512/4=128$  ports, as opposed to 512 ports. This is important because, the larger the cross-connect is the more optical power loss there is, the more important the cost is, as well as the possibilities for failures (a large possibility for MEM failure). -It reduces the requirement for wavelength conversion in all-optical cross-connects. With this label-switching technique we may reduce the number of full range wavelength converters needed in a  $W$  wavelengths WDM system from  $W$  to the order of  $W^{(1/2)}$ . This leads to two positive consequences: -dramatic decrease in the costs of transparent all-optical cross-connects - Better optical channel utilization. From the point of view of wavelength conversion, this solution is more scalable than the one consisting in computing optimal placements of wavelength converters through Linear Integer Programming. -This all-optical label switching approach naturally extends the IP MPLS paradigm in the optical domain.

### Solutions that have been tried and why they didn't work:

-Label switching through all-optical packet switching. The drawbacks of this approach stems from the immaturity of all-optical packet switching. Also, the business case for all-optical packet switching is not clear.

### Specific elements or steps that solved the problem and how they do it:

Key elements:-label stack encoding through wavelength selection-label-pop and label-push in the optical domain through additive and multiplicative wavelength conversion-wavelength switching through wavelength comparators

Some more details below:-The label stack is encoded into the wavelength in binary form-Each wavelength is associated a binary field that corresponds to its value. For example wavelength 33 is encoded as 000100001-The binary number associated with each wavelength is divided into sub-fields that corresponds to labels. If we consider the previous example, with labels that are 3 bits long, we see that wavelength 33 corresponds to the following label stack: (000, 100, 001)-Each cross-connect switches channels according to the top most labels of the wavelengths. In the case of wavelengths described by 9 bits long binary fields, and with 3 bit long labels, this means that incoming wavelengths belonging to the same groups are switched to the same outgoing ports, where the groups are defined as follows:

- group 1: range 000000000 to 000111111
- group 2: range 001000000 to 001111111
- group 3: range 010000000 to 010111111
- group 4: range 011000000 to 011111111
- group 5: range 100000000 to 100111111
- group 6: range 101000000 to 101111111
- group 7: range 110000000 to 110111111
- group 8: range 111000000 to 111111111

Each cross-connect performs label-pop and label-push of the optical labels by using additive and multiplicative wavelength conversion. To illustrate we come back to the previous example with 3-bit long labels, and wavelength  $x=264$  encoded as 100001000

- Label stack of  $x$ : (100, 001, 000)
- Pop label:
  - 1: subtract wavelength 256 ( corresponding to 100000000) to  $x$ , through additive wavelength conversion
  - 2: convert  $(x-256)$  to  $(2^3)*(x-256)$  through multiplicative wavelength conversion
- Push label  $l=110$ : convert  $x$  to  $\text{floor}(x/(2^3))+l*(2^5)$

In general in a system with  $W=2^N$  wavelengths, and  $L$  bit long labels where  $L$  divides  $N$  we have:

- Pop label stack of  $x$ : map  $x$  to  $(x-l*(2^{(N-L)}))*2^L$ , where  $l$  is the top most label of  $x$
- Push label  $l$  into  $x$ : map  $x$  to  $\text{floor}(x/2^L)+l*2^{(N-L)}$

All the arithmetic operations are implemented using simple wavelength converters and wavelength comparators (especially the floor operation)-The length of the labels used by the switches are configurable by variable granularity wavelength filters and comparators

#### **Commercial value of the invention to Nortel and Nortel's major competitors:**

The commercial value is important considering the strong demand for integrated IP/WDM products, and the high price of wavelength conversion (less dependence on wavelength conversion means more margins)

Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283ROUS01U

**EXHIBIT B**



---

From: Larocca, Kimberly [BL60:9545:EXCH]  
Sent: [REDACTED]  
To: Dasyiva, Abel [KAN:0V13:EXCH]  
Cc: Chance-Parrish, Sherry [GRWAY:9540:EXCH]; Anderson, Holmes [BL60:120:EXCH]; Wang, Guo-Qiang [KAN:0V10:EXCH]  
Subject: 12283RO - Approval

Memorandum                      NORTEL NETWORKS CONFIDENTIAL  
                                         & PRIVILEGED COMMUNICATION

Invention Disclosure Approved  
Invention Disclosure No.: 12283RO  
Title: All-optical Label-switching

The above-identified invention disclosure was recently reviewed in accordance with the invention disclosure review process approved by the appropriate LOB, and the filing of a patent application was approved.

A patent professional will be contacting you to discuss the invention in order to prepare an accurate, detailed patent application. Once a regular patent application is filed, you may be eligible for a patent award under Nortel Networks' Corporate procedure No. 401.01.

As an inventor on a U.S. patent application you have duties which include the following:

1. Providing sufficient information on the invention in the patent application to enable one of ordinary skill in the area of the invention to make and use the invention; and
2. Disclosing prior art (e.g. public information or references) that is relevant to the invention.

The patent professional will further discuss both of these duties with you prior to filing the application.

While the patent application for the invention is a legal document, it is also a technical document. If it is technically deficient in describing the invention, it can impact the validity of the patent that issues from the application. You should therefore feel comfortable with and understand the patent application. If you do not, then please work with the patent professional to make the application technically accurate.

Please remember that the invention is Nortel Networks confidential and proprietary information and should be safeguarded against unauthorized disclosure. Any disclosure outside Nortel Networks could have adverse legal effects on the company's ability to secure patent rights for the invention. Accordingly, it is important that you advise me well in advance of any planned public disclosure of the invention. Should any public disclosure of the invention have already occurred, or is planned to occur, please notify me so that appropriate steps can be taken to potentially avoid adverse legal consequences.

Thank you again for your submission. Your support of the invention disclosure process is greatly appreciated.

Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283ROUS01U

**EXHIBIT C**

Holmes W. Anderson  
Corporate Patent Counsel  
Intellectual Property Law Group  
600 Technology Park Drive, MS E65-60-403  
Billerica, Massachusetts 01821-5501  
Tel 978-288-6997 Fax 978-288-6543  
[www.nortelnetworks.com](http://www.nortelnetworks.com)



*How the world shares ideas.*

July 3, 2000

CONFIDENTIAL  
VIA FACSIMILE 202 778-2201, ORIGINAL NOT SENT

Thomas E. Anderson  
Hunton & Williams  
1900 K Street, N.W.  
Washington, DC 20006-1109

Re: **Patent Application for Invention Disclosure No. 12283RO, entitled "All-optical label-switching"**  
**Required Filing Date: October 3, 2000**

Dear Tom:

Nortel Networks would like to retain your firm to prepare and file in the United States Patent and Trademark Office (USPTO), by no later than the above-referenced filing date, a U.S. patent application directed to the invention disclosed in the above-referenced and enclosed invention disclosure. The application should be prepared with the highest level of quality, following the Nortel Networks guidelines, and consistent with our desire that the total fees associated with the preparation of the application be about \$8500, exclusive of drawing(s) and USPTO filing fees. In the event you do not feel that these expectations can be met for any reason, please call me immediately so that we can discuss the matter.

The inventor named on the first page of the invention disclosure is usually the principal inventor and the main person you will work with in preparing the application. That person is expecting to be contacted, and should be contacted within the next 7 to 10 days by you to discuss the logistics for preparing the application, including the development of a schedule that will ensure the application is prepared and filed by the above-referenced filing date. (If the inventor named on the first page of the invention disclosure is not the principal inventor, then the other inventors should be contacted within the 7 to 10 day period for the same purpose.) The other inventor(s), if there are any, should also be contacted to assure they are in fact inventors and to obtain their comments, including their comments with respect to the draft(s) of the application. When talking to the inventor(s) please be sure to discuss at least the following two inventor duties and what they mean: (1) the need to obtain and include sufficient information in the application to enable one skilled in the art to practice the invention without undue experimentation and (2) the duty of disclosure.

Thomas E. Anderson  
Hunton & Williams  
July 3, 2000  
Page - 2 -

Prior to meeting with the inventor(s) and beginning work on the application, you should review the enclosed invention disclosure. Although the application is to cover what is contained in the invention disclosure, it should as a minimum focus on disclosing and claiming the broad aspects of the invention described in the enclosed invention disclosure. By no means, however, should the invention disclosure limit the focus of the application, especially as the specifics of the case require. To the extent the focus of the application and the drafting strategy are not clear, you should contact me at the above number. Please be sure that all communications associated with the application, including billing statements and communications, and the application itself reference the above-referenced disclosure number.

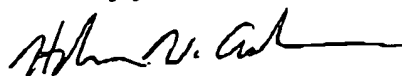
Please send me a copy of each draft of the application when it is sent to the inventor(s). Additionally, please send a substantially complete and final draft of the application to me at least 10 days prior to the above-referenced filing date to provide Nortel Networks' IP Law Group sufficient opportunity to review the application prior to filing. In conjunction with sending the substantially complete and final draft of the application, please be sure to provide a completed Nortel Networks' Outsource Patent Application Checklist for the application.

You should seek to obtain the signatures on the formal papers from all inventors directly. The Nortel Networks Outsourcing personnel will only be able to assist you in this regard in exceptional circumstances.

Upon filing the application with the USPTO, please follow existing procedures of immediately faxing a copy of your cover letter to the USPTO to LuGay Blanscet and John Crane, and an additional copy to Diana Gordon, so that we know immediately when, and have a record that, the application has been filed. Thereafter, please send hardcopies of the application as filed along with an electronic copy in Microsoft Word 6.0 readable format on a 3 1/2" floppy disk to LuGay and Diana.

Should you have any questions, please call me at the above number or Diana Gordon at 978-288-6509.

Sincerely yours,



Holmes W. Anderson

HWA:kl  
Enclosure

cc w/o enc.: Ms. LuGay Blanscet

Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283ROUS01U

**EXHIBIT D**



1900 K STREET, N.W.  
WASHINGTON, D.C. 20006-1109

TEL 202 • 955 • 1500  
FAX 202 • 778 • 2201

THOMAS E. ANDERSON  
DIRECT DIAL: 202 • 955 • 1803  
EMAIL: anderson@hunton.com

FILE NO: 57983.000005

September 1, 2000

Mr. Abel C. Dasylva  
Nortel Networks  
21 Richardson Side Road  
M/S 117D1F04  
Kanata ON K2K 2C1  
Canada

Re: New U.S. Patent Application  
Title: "TECHNIQUE FOR ROUTING A DATA PACKET IN  
AN OPTICAL NETWORK"  
Your Ref.: 12283RO  
Our Ref.: 57983-000005

Dear Abel:

Enclosed please find a copy of a draft of the above-identified patent application for your review.

Please review this application to determine if it accurately and adequately describes your invention, noting on the enclosed draft any comments or suggestions you may have.

After you have completed your review, please return the draft to me. The patent application will then be placed in a condition for filing in the U.S. Patent and Trademark Office (USPTO), and a final version of the patent application will be sent to you for execution.

Also, pursuant to USPTO rules, a statement must be submitted disclosing to the USPTO all presently known information believed material to the examination of the above-identified patent application. Information is considered material if there is a substantial likelihood that the information would be considered important in deciding patentability. Accordingly, please send for my review all presently known patents, publications, or other published materials relating to the subject invention. Please note that you are not required to do any research to locate information that is not already known by you.

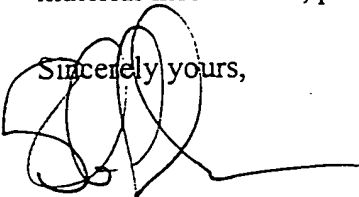
HUNTON &  
WILLIAMS

Mr. Abel C. Dasyva  
September 1, 2000  
Page 2

Accurate and complete disclosure of material information facilitates the examination phase of the patent application, and most importantly, strengthens the presumption of validity accorded any patent issuing thereon.

If you have any questions concerning the review of the patent application or the submission of material information, please do not hesitate to contact me directly at the above-listed number.

Sincerely yours,

A handwritten signature in black ink, appearing to be 'TEA', with a long horizontal line extending to the right.

Thomas E. Anderson

TEA/lhr  
Enclosure

cc: Holmes Anderson

Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283ROUS01U

**EXHIBIT E**





1900 K STREET, N.W.  
WASHINGTON, D.C. 20006-1109

TEL 202 • 955 • 1500  
FAX 202 • 778 • 2201

THOMAS E. ANDERSON  
DIRECT DIAL: 202 • 955 • 1808  
EMAIL: anderson@hunton.com

FILE NO: 57983.000005

September 18, 2000

Mr. Abel C. Dasyuva  
Nortel Networks  
21 Richardson Side Road  
M/S 117D1F04  
Kanata ON K2K 2C1 Canada

Re: New U.S. Patent Application  
Title: "TECHNIQUE FOR ROUTING DATA WITHIN AN OPTICAL NETWORK"  
Your Ref.: 12283RO  
Our Ref.: 57983.000005

Dear Abel:

Enclosed please find a final draft of the above-identified patent application into which all of your comments have been incorporated. Also enclosed are formal documents: a Combined Declaration and Power of Attorney form and an Assignment form.

Please have all the inventors review the patent application for accuracy and completeness, and then execute (i.e., sign and date) the formal documents where indicated. Please note that the Assignment needs to be executed in the presence of a witness.

After the formal documents have been executed, please return all of the documents, including the patent application, to me for filing with the U.S. Patent and Trademark Office.

If you have any questions regarding this matter, please do not hesitate to contact me directly at the above-listed direct-dial telephone number or e-mail address.

Sincerely yours,

  
Hunton & Williams

Thomas E. Anderson

TEA/lhr

Enclosures

cc: Holmes Anderson (via fax with checklist and application but without formal papers)

Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283ROUS01U

**EXHIBIT F**

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: "Technique for Routing Data Within an Optical Network", the specification of which:

(X only one) (a) x is attached hereto.  
(b) \_\_\_\_\_ was filed as U.S. Patent Application No. \_\_\_\_\_ on \_\_\_\_\_, 20\_\_\_\_, and was amended on \_\_\_\_\_, 20\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims as amended by any amendment referred to above.

I hereby acknowledge the duty to disclose to the Office all information known to me to be material to the patentability of this application as defined in 37 CFR § 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. § 119 of any foreign application(s) for patent or inventor's certificate listed below, and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of any application on which priority is claimed:

Application No.	Country	Filing Date (MM/DD/YY)	Priority Claimed
_____	_____	_____	_____
_____	_____	_____	_____

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not

disclosed in the prior United States application in the manner provided by the first paragraph of 35 U.S.C. § 112, I hereby acknowledge the duty to disclose to the Office all information known to me to be material to the patentability of this application as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Filing Date (MM/DD/YY)	Status (Patented, Pending, Abandoned)
_____	_____	_____
_____	_____	_____

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint: Thomas E. Anderson, Reg. No. 37,063; Thomas J. Scott, Jr., Registration No. 27,836; Stanislaus Aksman, Registration No. 28,562; James G. Gatto, Registration No. 32,694; Christopher C. Campbell, Registration No. 37,291; Thomas M. Blasey, Registration No. 33,475; Henry C. Su, Registration No. 37,738; Brian M. Buroker, Registration No. 39,125; Charles F. Hollis, Registration No. 40,650; Jonathan D. Link, Registration No. 41,548; Kevin J. Dunleavy, Registration No. 32,024; Kevin T. Duncan, Registration No. 41,495; Charles B. Lobsenz, Registration No. 37,857; George Georgellis, Registration No. 43,632; Stephen T. Schreiner, Registration No. 43,097; Christopher J. Cuneo, Registration No. 42,450; Raphael A. Valencia, Registration No. 43,216; Scott D. Balderston, Registration No. 35,436; Steven P. Klocinski, Registration No. 39,251; Yisun Song, Registration No. 44,487; Jennifer A. Albert, Registration No. 32,012; Kerry Owens, Registration No. 37,412; Milan M. Vinnola, Registration Number 45,979; Devin S. Morgan, Registration No. 45,562; Andrew J. Ririe, Registration No. P45,979; Carl L. Benson, Registration No. 38,378; Robin C. Clark, Registration No. 49,050; Herbert V.

Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283RO


Kerner, Registration No. 42,721; Rene' Vazquez, Registration No. 38,647, all of the firm **Hunton & Williams**, 1900 K Street, NW, Washington, DC 20006, as my attorneys and/or agents, with full power of substitution and revocation, to prosecute this application, and any provisionals, continuations, continuations-in-part, divisionals, appeals, reissues, substitutions, re-examinations, and extensions thereof, and to transact all business in the United States Patent and Trademark Office connected therewith, to appoint any individuals under an associate power of attorney, and to file and prosecute any international patent application based thereon before any international authorities.

Please address all correspondence and direct all telephone calls to:

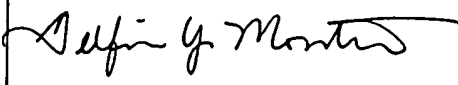
Thomas E. Anderson  
Hunton & Williams  
1900 K Street, NW  
Washington, DC 20006  
(202) 955-1808  
(202) 778-2201 (Fax)

**NAMED INVENTOR(S) :**

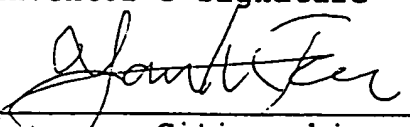
Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283RO

1	<b>Full Name</b> Abel C. Dasyuva	<b>Inventor's Signature</b> 	<b>Date</b> Oct. 5 2000
	<b>Residence</b> (city, state, country) <b>Citizenship</b>  1-70 Bolton Ottawa, ON K1N5A9 Canada      Ivory Coast		
	<b>Post Office Address</b> (include zip code)  1-70 Bolton Ottawa, ON K1N5A9 Canada		

Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283RO

2	<b>Full Name</b> Delfin Y. Montuno	<b>Inventor's Signature</b> 	<b>Date</b> Oct. 5, 2000
	<b>Residence</b> (city, state, country) <b>Citizenship</b>		
	122 Knudson Drive Kanata, ON K2K2L8 Canada      Canada		
<b>Post Office Address</b> (include zip code)			
122 Knudson Drive Kanata, ON K2K2L8 Canada			

Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283RO

3	<b>Full Name</b> Yanhe Fan	<b>Inventor's Signature</b> 	<b>Date</b> Sept. 28, 2000
	<b>Residence</b> (city, state, country) <b>Citizenship</b>		
	25 Woodridge Cr. Apt. 1212 Neapen, ON K2B7T4 Canada      Canada		
<b>Post Office Address</b> (include zip code)			
25 Woodridge Cr. Apt. 1212 Neapen, ON K2B7T4 Canada			



Patent Application  
Attorney Docket No.: 57983.000005  
Client Reference No.: 12283ROUS01U

**EXHIBIT G**

TEA



## UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS  
UNITED STATES PATENT AND TRADEMARK OFFICE  
WASHINGTON, D.C. 20231  
www.uspto.gov

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/685,090	10/11/2000	2874	782	57983.000005	16	24	2

Thomas E. Anderson  
Hunton & Williams  
1900 K Street, NW  
Washington, DC 20006

## FILING RECEIPT



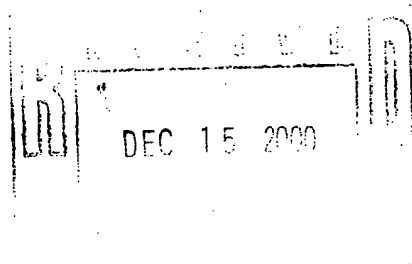
\*OC000000005615059\*

Date Mailed: 12/12/2000

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the PTO processes the reply to the Notice, the PTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

## Applicant(s)

Abel C. Dasylva, Ottawa, CANADA;  
Delfin Y. Montuno, Kanata, CANADA;  
Yanhe Fan, Neapen, CANADA;



## Continuing Data as Claimed by Applicant

## Foreign Applications

If Required, Foreign Filing License Granted 12/12/2000

REVIEWED  
SW.

## Title

Technique for routing data within an optical network

## Preliminary Class

385

Data entry by : HAILE, MENTUAB

Team : OIPE

Date: 12/12/2000



**LICENSE FOR FOREIGN FILING UNDER  
Title 35, United States Code, Section 184  
Title 37, Code of Federal Regulations, 5.11 & 5.15**

**GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 36 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Office of Export Administration, Department of Commerce (15 CFR 370.10 (j)); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15 (b).

**PLEASE NOTE the following information about the Filing Receipt:**

- The articles such as "a," "an" and "the" are not included as the first words in the title of an application. They are considered to be unnecessary to the understanding of the title.
- The words "new," "improved," "improvements in" or "relating to" are not included as first words in the title of an application because a patent application, by nature, is a new idea or improvement.
- The title may be truncated if it consists of more than 600 characters (letters and spaces combined).
- The docket number allows a maximum of 25 characters.
- If your application was submitted under 37 CFR 1.10, your filing date should be the "date in" found on the Express Mail label. If there is a discrepancy, you should submit a request for a corrected Filing Receipt along with a copy of the Express Mail label showing the "date in."
- The title is recorded in sentence case.

Any corrections that may need to be done to your Filing Receipt should be directed to:

Assistant Commissioner for Patents  
Office of Initial Patent Examination  
Customer Service Center  
Washington, DC 20231